APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,642	06/04/2001	Tomonaga Yamamoto	392.1716	9776

21171   7590   07/18/2002

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EXAMINER
ELKASSABGI, HEBA

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 07/18/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- Th MAILING DATE of this communication appears on the cover sheet with th correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _30 April 2002_ .

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-14_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-14_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _30 April 2002_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

Drawings

1.   The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on April 30,2002 have been approved. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Specification

2.   The proposed title change has been approved.

The objection to the title is withdrawn.

Response to Arguments

3.   Applicant's arguments with respect to claims 1 to 7 have been considered, but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

5.   Claims 1,2, 3, 4, 5, 6, 7,8,9,10, 11,12,13 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Nitta et al. JP Patent Application (406217478A).

6.   Nitta et al. discloses a permanent magnet type motor in Figure 1 with a plurality of outer curved poles (9), in where the curvature is defined by the following formulas disclosed by Nitta et al.

$$R (\theta) = r\,c \pm (H (\theta) - r\,c)$$

$$H (\theta) = \{(\cos^2 \varphi = 4^* a\,8\,r\,c^* \sin^2 \varphi)^{\frac{1}{2}} - \cos \varphi\} / (2^* a^* \sin^2 \varphi)$$

The above formulas of Nitta et al. are sinusoidal correlations and that the applicants formula of a hyperbolic function,

$$R (\theta) = A - B. (e^{c\theta} + e^{-c\theta})/2$$

can be easily transformed into the sinusoidal function of Nitta et al., since both of these functions can be expressed as power series functions.

The following definitions from Marks' Standard Handbook For Mechanical Engineers 10th edition, states the following:

$$e^x = 1 + x/1! + x^2/2! + x^3/3! + x^4/4! + \ldots\ldots$$

$$Sin\,x = x - X^3/3! + x^5/5! - x^7/7! + \ldots\ldots$$

$$Cos\,x = 1 - x^2/2! + x^4/4! - x^6/6! + \ldots\ldots$$

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The above definitions in correlation to the formulas of Nitta et al. are the same with the adjustments of the constants A and B in regards to the applicants claim of the hyperbolic function, therefore the hyperbolic geometry form of the applicants hyperbolic function and Nitta et al. are equivalent. Wherein the formulas of Nitta et al. an angular position of θ represents the pole center of each permanent magnet and that "rc" is the representation of the distance from the center of rotation to the central part of the outer face of the permanent magnet ,and that "rb" represents the center of rotation to the pole border on the outer face of the permanent magnet and that "P" represents the number of poles of the permanent magnet.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Heba Elkassabgi whose telephone number is (703) 305-2723. The examiner can normally be reached on M-Th (6:30-3:30), and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a g neral nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-1782.

Heba Elkassabgi
July 15, 2002

NESTOR RAMIREZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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